



MSHA's Accident Prevention Program Safety Idea

Safety and
Health are
Values!

Auxiliary Power Source Interlocks

A failsafe mechanically operated electrical interlock on motor-generator auxiliary power sources can prevent fatal electrical shocks.

When proper steps are not taken to isolate auxiliary power sources on draglines or other large equipment, voltages can feed back into other circuits. These voltages can result in injury or even death. The use of a failsafe mechanically operated electrical interlock on the motor-generators supplying power to the auxiliary power sources can prevent harmful or fatal electrical shocks. A failsafe mechanically actuated electrical interlock system prevents the main and auxiliary power sources from being connected to the same circuit at the same time. It requires a positive action that must be performed to start the motor-generator and opens all other circuits except the motor-generator auxiliary power source. An idea for such an interlock is attached.



MOTOR-GENERATOR INTERLOCK CIRCUIT

Motor-generator sets are frequently used for auxiliary power sources on-board draglines and other large equipment. Figure 1 is an idea that creates a failsafe mechanical/electrical interlock that can prevent an auxiliary power source such as a motor-generator set and the main power source from being connected to the same circuit at the same time.

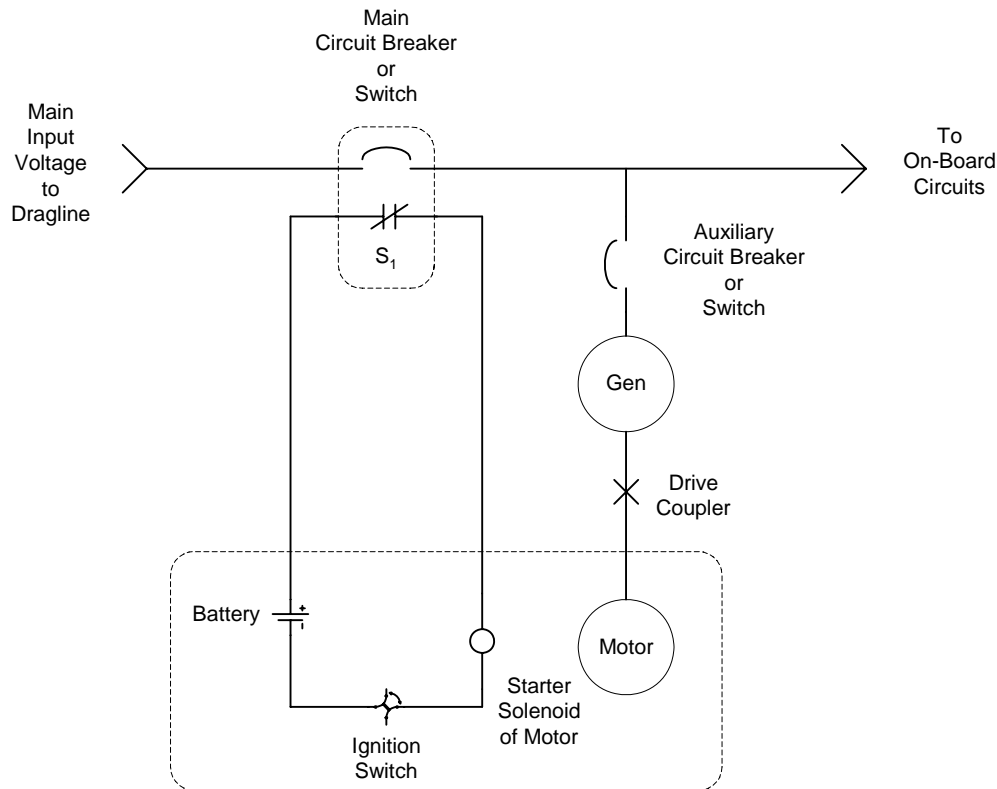


Figure 1

Contacts S_1 are mounted in the ignition circuit of the diesel engine and are mechanically actuated only by the linkage of the main input circuit breaker or switch as it is opened. When the main switch opens, the linkage closes the S_1 contacts, and only then can the diesel engine be started and the auxiliary circuit breaker closed. When so installed, a motor-generator set cannot be started and energized unless the machine main circuit breaker or switch is in the open position. Thus a positive action (i.e. opening the main input switch) is established that must be taken before the auxiliary power source can be energized.